

What is claimed is:

1 1. A fuel cell system comprising:
2 a fuel cell subsystem comprising a fuel cell stack adapted to furnish power to a
3 load;
4 a battery;
5 a first circuit adapted to connect the battery to the load when the fuel cell
6 subsystem substantially delays in responding to a change in the power;
7 a current sensor to indicate a current through the fuel cell stack; and
8 a second circuit coupled to the current sensor to monitor cell voltages of the fuel
9 cell stack, determine the minimum of the cell voltages and prevent the current from
10 exceeding a maximum threshold current based on the minimum cell voltage.

1 2. The fuel cell system of claim 1, wherein the first circuit is further adapted
2 to disconnect the battery from the load when the fuel cell subsystem responds to the
3 change.

1 3. The fuel cell system of claim 1, wherein the fuel cell subsystem comprises:
2 a fuel cell stack adapted to receive a hydrogen flow; and
3 a fuel processor to produce the hydrogen flow.

1 4. The fuel cell system of claim 3, wherein the fuel cell subsystem further
2 comprises:
3 a controller adapted to monitor the power and regulate a rate at which the fuel
4 processor produces the hydrogen flow based on the monitored power.

1 5. The fuel cell system of claim 1, wherein the first circuit is further adapted
2 to connect the battery to the load based on a fuel cell stack voltage of the fuel cell
3 subsystem.

6. The fuel cell system of claim 1, wherein the first circuit comprises:
a first diode to couple the battery to the fuel cell subsystem when a stack voltage
of the fuel cell subsystem is near a predefined threshold voltage.

7. The fuel cell system of claim 1, wherein the second circuit comprises:
a voltage regulator adapted to regulate a stack voltage of the fuel cell stack and
limit the current through the stack.

8. A method comprising:
using a fuel cell stack to furnish power to a load;
connecting a battery to the load in response to the fuel cell stack substantially
delaying when responding to a change in the power;
monitoring a current through the fuel cell stack;
monitoring cell voltages of the fuel cell stack;
determining the minimum of the cell voltages; and
preventing the current from exceeding a maximum threshold current based on the
minimum cell voltage.

9. The method of claim 8, further comprising:
disconnecting the battery from the load when the fuel cell subsystem responds to
the change.

10. The method of claim 8, further comprising:
monitoring the power;
producing hydrogen;
regulating a rate of the production in response to the monitoring; and
providing the hydrogen to a fuel cell stack of the system.

11. The method of claim 8, further comprising:
connecting the battery to the load based on a fuel cell stack voltage of the fuel cell
subsystem.

12. The method of claim 8, further comprising:
connecting the battery to the load when a stack voltage of the fuel cell subsystem
is near a predefined threshold voltage.

13. The method of claim 8, further comprising:
using a voltage regulator to regulate a stack voltage of the fuel cell stack and limit
the current through the stack..

14. A fuel cell system comprising:
a fuel cell subsystem adapted to measure a lowest cell voltage and further
adapted to furnish power to a load, wherein the fuel cell subsystem is connected to the
load through a diode;
a fuel processor subsystem adapted to furnish reformat to the fuel cell
subsystem; and
a supplemental power subsystem adapted to furnish power to the load
when the lowest cell voltage drops below a predefined threshold voltage, wherein the
supplemental power subsystem is connected to the load through a diode.

15. A fuel cell system comprising:
a fuel cell subsystem adapted to measure a lowest cell voltage and further
adapted to furnish power to a load, wherein the fuel cell subsystem is connected to the
load through a diode;
a fuel processor subsystem adapted to furnish reformat to the fuel cell
subsystem;
a supplemental power subsystem adapted to furnish power to the load
when the lowest cell voltage drops below a predefined threshold voltage, wherein the
supplemental power subsystem is connected to the load through a diode; and
a controller adapted to monitor the power and regulate a rate at which the
fuel processor produces the hydrogen flow based on the monitored power.

1 16. The fuel cell system of claim 15, further comprising:
2 a predefined threshold voltage of -0.35 volts.

1 ~~17.~~ 18. The fuel cell system of claim 15, further comprising:
2 a predefined threshold voltage of more than -0.4 volts.

1 ~~18.~~ 19. The fuel cell system of claim 15, further comprising:
2 a predefined threshold voltage of more than -0.5 volts.

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